

above Tg in preheat system 15 of Fig. 1); and page 12, line 5 (refiner 10 of Fig. 1). In particular, the specification from page 11 at line 22 through page 12 line 6, read in conjunction with the figures, discloses different pressure/temperature conditions, separated by pressure plugs upstream of 11 and 19, between the pretreatment and preheating. On page 14, line 30, a higher pressure of the preheating relative to the pretreatment is described with reference to the pressure plug formed by 88 as shown in Figure 3. In the RTS type of TMP refining process, the pressure/temperature environment in both the preheating and refining components is higher, preferably by at least 10 deg. C, than Tg. The RTS is the subject of incorporated U.S. Patent Application No. 08/736,366, now U.S. Patent Application No. 5,776,305. The document incorporated by reference discloses a pressure range of 75-95 psi for preheating and refining with RTS. Such document also discloses the steam pressure range of conventional TMP refining, as 30-55 psi (which also represents conventional TMP preheating). Although Tg can vary somewhat, it is well known that Tg is generally above the 120 deg. C value recited for the material in the pretreatment step of the claims. Thus, ample support appears in the specification for the claim recitations to the effect that the preheating operation is distinct from the pretreatment operation, with the preheat steam pressure being different from, and preferably greater than, the pretreatment steam pressure.

Claim 29 has been amended to add a preheating step, thereby making claim 29 consistent with claims 31 and 36 with respect to specifying distinct pretreatment, preheating, and refining operations as discussed immediately above. The refining step must immediately follow the preheating step, thereby precluding both spatially and temporally, any distinct intervening processing between preheating and refining, such as chemical digestion. (Applicant's claim does not preclude addition of chemicals during or after pretreatment).

Claim 31 has been amended to conform the pressure range for the pretreatment (conditioning and compressing) to the temperature range disclosed for TMP processing, as suggested by the Examiner. Claim 32 has been amended to reflect the amendment to claim 31.

Independent claim 36 has been amended to delete the specific pressure range, while retaining the temperature range, of the conditioning and compressing. Nevertheless, the conditioning and compressing must still be performed "in an environment of saturated steam at elevated pressure", thereby precluding pretreatment at mere atmospheric pressure. Claim 36 is directed to the invention as implemented in Applicant's proprietary "RTS" version of TMP, wherein the preheating and refining are performed at a temperature above  $T_g$ , with high disc rotation speed in the refiner. These speeds of over 1500 rpm for a double disc refiner and over 1800 rpm for a single disc refiner are disclosed on page 12, starting at line 7.


As a practical matter, the claims were rejected on the combination of the disclosures of Prusas (which is directed to chemical pulping) and Lunan (which is directed to TMP refining). There is no nexus or suggestion by which persons of ordinary skill in the relevant fields of chemical pulping and mechanical refining, respectively, could reasonably combine the three operations for TMP refining as recited in any of Applicant's independent claims 29, 31, or 36, without the benefit of Applicant's own specification. Prusas discloses a form of compressive pretreatment of feed material before chemical pulping, without any hint at potential use in mechanical refining. Lunan discloses preheating associated with TMP refining, but without any hint of a separate compressive pretreatment.

The novel and non-obvious combination of compressive pretreatment, preheating, and refining was also discussed by Applicant from page 7, line 14 to page 8, line 6 and from page 9, line 14 to page 10, line 3 of the Response filed August 10, 1999. The Examiner is referred to this passage again.

For the foregoing reasons, Applicant believes all claims are now in condition for allowance.

Respectfully submitted,

MARC J. SABOURIN

By:   
L. James Ristas  
Registration No. 28,663  
Alix, Yale & Ristas LLP  
Attorney For Applicant

Date: July 25, 2000  
750 Main Street  
Hartford, Connecticut 06103-2721  
(860) 527-9211  
Our Ref: ANDR/346/US  
LJR/dal

A: andr346amd 07 2500.doc